



A subsidiary of Pinnacle West Capital Corporation

Palo Verde Nuclear
Generating Station

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102-05610-CE/CKS/REB
December 13, 2006

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Dear Sirs:

**Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 3
Docket No. STN 50-530
License No. NPF-74
Licensee Event Report 2006-007-00**

Attached please find Licensee Event Report (LER) 50-530/2006-007-00 that has been prepared and submitted pursuant to 10 CFR 50.73. This LER reports a manually initiated reactor trip from approximately 100 per cent power due to feedwater problems.

In accordance with 10 CFR 50.73(d), copies of this LER are being forwarded to the NRC Regional Office, NRC Region IV and the Senior Resident Inspector. If you have questions regarding this submittal, please contact James A. Proctor, Section Leader, Regulatory Affairs, at (623) 393-5730.

Arizona Public Service Company makes no commitments in this letter.

Sincerely,

A handwritten signature in black ink, appearing to read 'Cliff Eubanks', is written over a horizontal line.

CE/CKS/REB/gt

Attachment

cc:	B. S. Mallett	NRC Region IV Regional Administrator
	M. B. Fields	NRC NRR Project Manager - (send electronic and paper)
	G. G. Warnick	NRC Senior Resident Inspector for PVNGS

IE22

NRC FORM 366 (6-2004)	U.S. NUCLEAR REGULATORY COMMISSION	APPROVED BY OMB: NO. 3150-0104	EXPIRES: 06/30/2007
<h2 style="margin: 0;">LICENSEE EVENT REPORT (LER)</h2> <p style="margin: 0;">(See reverse for required number of digits/characters for each block)</p>		Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.	

1. FACILITY NAME Palo Verde Nuclear Generating Station (PVNGS) Unit 3	2. DOCKET NUMBER 05000530	3. PAGE 1 OF 5
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4. TITLE
MANUAL REACTOR TRIP DUE TO DEGRADING CONDENSER VACUUM AND CONDENSATE FLOW

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
10	19	2006	2006	- 007 -	00	12	13	2006		05000
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE <div style="text-align: center; font-size: 24px;">1</div>	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: (Check all that apply)																																													
10. POWER LEVEL <div style="text-align: center; font-size: 24px;">100</div>	<table style="width:100%; font-size: small;"> <tr> <td><input type="checkbox"/> 20.2201(b)</td> <td><input type="checkbox"/> 20.2203(a)(3)(i)</td> <td><input type="checkbox"/> 50.73(a)(2)(i)(C)</td> <td><input type="checkbox"/> 50.73(a)(2)(vii)</td> </tr> <tr> <td><input type="checkbox"/> 20.2201(d)</td> <td><input type="checkbox"/> 20.2203(a)(3)(ii)</td> <td><input type="checkbox"/> 50.73(a)(2)(ii)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(viii)(A)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(1)</td> <td><input type="checkbox"/> 20.2203(a)(4)</td> <td><input type="checkbox"/> 50.73(a)(2)(ii)(B)</td> <td><input type="checkbox"/> 50.73(a)(2)(viii)(B)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(i)</td> <td><input type="checkbox"/> 50.36(c)(1)(i)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(iii)</td> <td><input type="checkbox"/> 50.73(a)(2)(ix)(A)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(ii)</td> <td><input type="checkbox"/> 50.36(c)(1)(ii)(A)</td> <td><input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(x)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(iii)</td> <td><input type="checkbox"/> 50.36(c)(2)</td> <td><input type="checkbox"/> 50.73(a)(2)(v)(A)</td> <td><input type="checkbox"/> 73.71(a)(4)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(iv)</td> <td><input type="checkbox"/> 50.46(a)(3)(ii)</td> <td><input type="checkbox"/> 50.73(a)(2)(v)(B)</td> <td><input type="checkbox"/> 73.71(a)(5)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(v)</td> <td><input type="checkbox"/> 50.73(a)(2)(i)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(v)(C)</td> <td><input type="checkbox"/> OTHER</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(vi)</td> <td><input type="checkbox"/> 50.73(a)(2)(i)(B)</td> <td><input type="checkbox"/> 50.73(a)(2)(v)(D)</td> <td>Specify in Abstract below or in NRC Form 366A</td> </tr> </table>										<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A
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12. LICENSEE CONTACT FOR THIS LER	
FACILITY NAME James Proctor, Section Leader, Regulatory Affairs	TELEPHONE NUMBER (Include Area Code) 623-393-5730

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT									
CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
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14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE)	15. EXPECTED SUBMISSION DATE <div style="display: flex; justify-content: space-between;"> <div><input checked="" type="checkbox"/> NO</div> <div> <table style="width:100%; font-size: small;"> <tr> <th>MONTH</th> <th>DAY</th> <th>YEAR</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table> </div> </div>	MONTH	DAY	YEAR			
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On October 19, 2006 at about 1147 Mountain Standard Time, Unit 3 was operating in Mode 1, Power Operation, at approximately 100% power when control room personnel initiated a manual reactor trip in response to lowering condenser hotwell level which had caused two of the three operating condensate pumps to trip coincident with degrading condenser vacuum.

The cause of the hotwell level and condenser vacuum reduction was determined to be a failed open air operated valve on the condensate demineralizer drain header which created an opening from condenser shell "C" to atmosphere. The root cause of the event was determined to be that the challenge to the unit posed by degraded condenser vacuum created by an open SCN-UV-232 valve concurrent with condensate demineralizer service vessel draining evolutions was not addressed through single point vulnerability reviews. Procedures have been changed to require an in-line manual valve to be closed except during specific demineralizer rinsing operation.

LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Palo Verde Nuclear Generating Station (PVNGS) Unit 3	05000530	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 5
		2006	-- 007	-- 00	

17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

All times are Mountain Standard Time and approximate unless otherwise indicated.

1. REPORTING REQUIREMENT(S):

This LER is being submitted pursuant to 10 CFR 50.73(a)(2)(iv)(A) to report a manual actuation of the reactor protection system to trip the reactor.

Specifically, on October 19, 2006 at 1147 hours Palo Verde Unit 3 control room operators (licensed) manually tripped the reactor from approximately 100% rated thermal power.

At 1427 hours on October 19, an Event Notification System call was made to report the event (# 42920).

2. DESCRIPTION OF STRUCTURE(S), SYSTEM(S) AND COMPONENT(S):

The condensate demineralizer system (SC) is used to maintain the purity and chemistry of the condensate, feedwater, and steam generator secondary side water. The SC system consists of the following major components:

- six condensate demineralizers (normally five in service and one standby)
- resin handling and regeneration equipment

The SC system processes secondary plant condensate, when necessary for optimal water chemistry, by directing condensate flow from the discharge of the condensate pumps through an array of polishing demineralizers (ion exchangers). When secondary chemistry conditions permit, the system can be left in a standby mode with condensate flow bypassing the demineralizers.

When an in-service demineralizer has been exhausted the standby demineralizer is placed into service and the exhausted demineralizer is removed from service and regenerated.

LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
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17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

3. INITIAL PLANT CONDITIONS:

Palo Verde Unit 3 was operating in Mode 1, Power Operations, at approximately 100% rated thermal power at the time of the event. There was no inoperable equipment at the start of this event that contributed to the event.

4. EVENT DESCRIPTION:

On October 19, 2006 at 1147 hours, with demineralizer regeneration activities in progress, condenser A-C and B-C high differential pressure alarms were received in the main control room coincident with lowering hotwell levels and degrading vacuum in the C shell. The lowering condenser hotwell level resulted in automatic trips (at 30 inches) of two (B & C) of the three operating condensate pumps. The loss of two condensate pumps with the unit operating at full power caused a reduction in main feedwater (MFW) pump suction pressure and the actuation of low suction pressure pre-trip alarms for both operating MFW pumps. The reactor was manually tripped by the control room operators from approximately 100% power and the Standard Post Trip Actions (SPTA) were performed. The plant was stabilized in Mode 3, Hot Standby, using steam bypass control system and main feedwater pump A. Offsite power remained available throughout the event.

Without operator intervention, this event would have resulted in an automatic reactor trip on low steam generator level following the trips of the MFW pumps after their respective low suction pressure trip timing circuits (MFW A 15 seconds; MFW B 10 seconds) had timed out. The control room staff action prevented the loss of the feedwater pumps which would have complicated event response and recovery.

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1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
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17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

5. ASSESSMENT OF SAFETY CONSEQUENCES:

The plant remained within safety limits throughout the event. The primary system and secondary pressure boundary limits were not approached and no violations of the specified acceptable fuel design limits (SAFDL) occurred. No ESF actuations occurred and none were required. There were no inoperable structures, systems, or components at the time of the event that contributed to this event. The event did not result in any challenges to the fission product barriers or result in the release of radioactive materials. Therefore, there were no adverse safety consequences or implications as a result of this event and the event did not adversely affect the safe operation of the plant or health and safety of the public.

The condition would not have prevented the fulfillment of any safety function and did not result in a safety system functional failure as defined by 10 CFR 50.73(a)(2)(v).

6. CAUSE OF THE EVENT:

An investigation of this event was conducted in accordance with the PVNGS corrective action program. The direct cause of the event was determined to be that valve SCN-UV-232 (air operated condensate demineralizer PRESERVICE RINSE valve) was failed open during vessel draining resulting in lowering hotwell level. The failed open SCN-UV-232 valve created an opening from condenser shell C to atmosphere and caused vacuum degradation in the C shell with a lesser effect on the A and B shells. The resultant higher pressure in the C shell, caused condensate to be retained (held up) in the A and B condenser shell reheat trays and condensate flow quickly reduced the hotwell level to the condensate pump low level trip setpoint causing the B and C condensate pumps to trip.

LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Palo Verde Nuclear Generating Station (PVNGS) Unit 3	05000530	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	5 OF 5
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17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

The cause of the spurious opening of SCN-UV-232 was attributed to the preventive maintenance periodicity for the solenoid portion of the Bray actuator for valve SCN-UV-232 (J) was not adequate to identify and replace the worn parts prior to impact on function.

The root cause of the event was determined to be that the challenge to the unit posed by degraded condenser vacuum created by an open SCN-UV-232 valve concurrent with condensate demineralizer service vessel draining evolutions was not addressed through single point vulnerability reviews.

No unusual characteristics of the work location (e.g., noise, heat, poor lighting) directly contributed to this event.

7. CORRECTIVE ACTIONS:

Procedures 40OP-9SC03, Operating the Condensate Demineralizer System and 40OP-9SC06, Condensate Demineralizer Subsystems were revised requiring an in-line manual isolation valve to remain closed except during a pre-service rinse when the service vessel is pressurized. This manual valve had previously been installed as a means to isolate SCN-UV-232 from the condenser when maintenance was being performed on SCN-UV-232.

In addition, the preventative maintenance frequency for SCN-UV-232 will be changed to a frequency that prevents loss of valve function due to wear or age degradation.

8. PREVIOUS SIMILAR EVENTS:

There have been no similar events reported by APS in the last three years.